COURSE STRUCTURE AND SYLLABUS APPROVED IN THE BOARD OF STUDIES MEETING HELD ON JULY- 2000 TO BE EFFECTIVE FROM THE ACADEMIC YEAR 2000-2001

MCA SEMESTER -1
Scheme of evaluation

Subject	L	P	C	Max. Marks Int.	Ext.	Total	Min. Marks to Pass Ext.	Total
I Semester								
MC1.1 Discrete structures	4	-	8	40	60	100	24	50
MC1.2 Computer Organization	4	-	8	40	60	100	24	50
MC1.3 C Programming	4	-	8	40	60	100	24	50
MC1.4 Probability and Statistics	4	-	8	40	60	100	24	50
MC1.5 Accounting and Financial Management	4	-	8	40	60	100	24	50
Practicals								
MC1.6 Programming in C lab	-	4	4	40	60	100	24	50
MC1.7 Window and 8086 Assembly language lab.	-	4	4	40	60	100	24	50

Chairman
Board of Studies

MC1.1

DISCRETE STRUCTURES

FUNDAMENTALS

Sets, Relation and Functions, Fundamental of logic Logical inferences, First order logic, Quantified propositions, Mathematical induction.

ELEMENTARY COMBINATORIES

combinations an Permutations, Enumeration with repetitions with constrained repetitions.

RECURRENCE RELATIONS

Generating functions, Coefficients of generating functions, Recurrence relations, Inhomogeneous recurrence relations.

RELATIONS AND DIGRAPHS

Relations and Digraphs, Binary relations Equivalence relations Ordering relations, Lattices Paths and Closures Directed graphs Adjacency matrices.

GRAPHS

Graphs Isomorphism, Trees, Spanning trees, Binary trees, Planar graphs Euler circuits Hamiltonian graphs, Chromatic numbers, Four colour problem.

Text Book :

J. L. Mott, A. Kandel & T. P. Baker - "Discrete Mathematics for Compute Scientists " Second edition Reston (Chapter 1-5)

MC1.2

COMPUTER ORGANIZATION

NUMBE SYSTEMS AND COMPUTER ARITHMETIC: Signed and unsigned numbers Addition & subtraction, multiplication, division, Floating point representation logical operation, Gray code BCD codes, Error detecting codes Boolean algebra Simplification of Boolean expressions - Maps.

COMBINATIONAL AND SEQUENTIAL CIRCUITS: Decoders, Encoders, Multiplexers, Half and Full address, shift registers, Sequential circuits-flip-flops.

MEMORY ORGANIZATION: Memory hierarchy Main memory RAM ROM chips, Memory address map Memory contention to CPU; Associative Memor -Hardware logic, match, read and write logic Cache Memory Associative mapping direct mapping, set -associative mapping hit an miss ratio.

BASIC CPU ORGANIZATION : Instruction format INTEL-8086 CPÕ architecture-Addressing modes-generation of physical address code segment registers Zero, one, two and three address instructions.

INTEL 8086 ASSEMBLY LANGUAGE INSTRUCTIONS: Data transfer instructions - input-output instructions, address transfer, Flag transfer, arithmetic, logical, shift and rotate instructions.

INTEL 8086 ASSEMBLY LANGUAGE INSTRUCTIONS: Conditional and unconditional transfer, iteration control, interrupts and process control instructions assembler directives Programming with assembly language instructions.

INPUT-OUTPUT ORGANIZATION: Peripheral devices, input-output interface-I/O Bus and interface modules, I/O versus Memory bus, isolated versus memory mapped I/O, Modes of transfer-Programmed I/O, Interrupt initiated I/O, priority interrupts -Daisy chaining ,parallel priority, interrupt cycle, DMA- DMA control, DMA transfer, Input output processor CPU -IOP communication.

Text Books :

1. MORIS MONO Computer System Architecture Second Edition, Prentice Hall of India.
2 Douglas V. Hall Intel 8086-Programming-McGraw -Hill International studies.
3 David A. Paterson and john L. Hennessy-Computer organization and design Harcourt ASIA PTE LTD-II Edition.

MC1.3

C-PROGRAMMING

FUNDAMENTALS - DATA TYPES, CONSTANTS, DECLARATIONS, Operators and expressions of C. Data I/O statements of C.

CONTROL STATEMENTS -If Else, While, DO-While, For Control statements, switch, break continue statements.

STORAGE CLASSES AND ARRAYS - Automatic, External and static Variables, on dimensional and multi dimensional arrays, arrays and strings, string Library functions.

FUNCTIONS - defining and accessing functions, passing arguments to functions, function prototypes, recursion, Passing arrays to functions.

POINTERS â€“ Fundamentals, pointer declarations, passing pointers to a function, operations on pointers, pointers, pointers and one and multidimensional arrays, arrays of pointers.

STRUCTURES AND UNIONS - definition of structure and union, user defined data types passing structures to function, SELF referential structures.

DATA FILE S - Opening and Closing files, creating and processing data files, unformatted files.

ADDITIONAL FEATURES OF C - - - Low level programming: register variables, bit wise operations bit fields, Enumeration's Command line parameters.

Text Book

Reference Byron S Gottfried - Theory and problems of programming with C - Scham's outline series - TATA McGraw-Hill publishing company

MC1.4

PROBABILITY AND STATISTICS

I Statistics:

Unit 1

Basic Statistics: Frequency Charts -Different Frequency charts; Measures of central tendencies: Mean, Median, Mode; Measures of dispersion: Range, Variance and standard deviational distributions and cumulative frequency distributions, Moments and Moment generating function.

Unit 2

Sampling: Theory of sampling; Populations and sample; sampling survey methods and estimation. Statistical Inference; Testing of Hypothesis and inference.

Unit 3

Linear correlation coefficient Linear regression; Non linear regression; Multiple correlation and multi regression. Regression Analysis: Least Square fit; polynomial and curve fittings;

Unit 4

Time Series and Forecasting: Moving averages, Smoothening of curves Forecasting models and methods, Statistical Quality Control Methods.

Unit 5

Factor Analysis ANOVA, Tests of significance: CHI-square test and F test, Application to medicine, psychology, agriculture etc.

II Probability :

Unit 6

Probability Theory: Sample Spaces; Events & probability; Discrete Probability; Union, intersection and compliments of events; conditional probability; Bayes Theorem.

Unit 7

Random Variables and Distributions: Random variables, Discrete Probability Distributions Binomial, Poission, Hypergeometric Density functions and Distributions functions; continuous Probability distribution, Uniform, Exponential, Normal, Student's T,Beta and F static.

Unit 8

Expectations and higher order moments; characteristic functions. Laws on Large Numbers, weak laws & strong laws of large members central limit theorem and other limit theorems. (statements only)

Text Books :

1. Mathematical Statistics - Gupta & Kapoor.

2. Prabability and Its Applications - Schaum Series.

MC1.5

ACCOUNTING AND FINANCIAL MANAGEMENT

Unit I

Accounting, Principles, concepts, conventions double entry system of accounting, introduction of basic books of accounts ledgers.

Unit II

Preparation of trial balance Final accounts - company final accounts.

Unit III

Financial Management - Meaning and scope, role, objectives of time value of money â€“ over capitalization - under capitalization â€“ profit maximization, wealth maximization â€“ EPS maximization.

Unit IV

Ratio Analysis - Advantages - limitations - Fund flow analysis â€“ meaning, importance, preparation and interpretation of Funds flow and cash flow statements -statement of changes in working capital.

Unit V

Costing - nature an importance and basic principles. Absorption costing vs. marginal costing - Financial accounting vs. cost accounting vs. management accounting

Unit VI

Marginal costing and Break-even Analysis: Nature, scope and importance - practical applications of marginal costing, limitations and importance of cost- volume profit analysis.

Unit VII

Standard costing and budgeting: nature, scope and computation and analysis - materials variance, labour variance and sales variance - budgeting - cash budget, sales budget - flexible budgets, master budgets.

Unit VIII

Introduction to computerized accounting system: Coding logic and codes, master files, transaction files, introduction documents used for data collection, processing of different files and outputs obtained.

Text Book :

1. Van Horne, James, C : Financial Management and Policy., Prentice Inc.